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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,099	04/18/2002	Yutaka Yamagata	111226	1117

7590 07/05/2005

Oliff & Berrigdg
PO Box 19928
Alexandria, VA 22320

EXAMINER

NAGPAUL, JYOTI

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/980,099

Applicant(s)

YAMAGATA ET AL.

Examiner

Jyoti Nagpaul

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/29/01</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-2,4-8 and 10-18** are rejected under 35 U.S.C. 102(b) as being anticipated by Morozov (WO 98/58745).

Morozov discloses an electrospray device for deposition of samples of substances, including biological molecules, such as proteins and DNA, into a specified shape or pattern over a substrate surface. (See pg 1, Lines 10-14) The device comprises electro-spraying means for electrostatically spraying, in sequence, a plurality of solutions held in multi-capillary cassette each containing respective one of a plurality of kinds of biologically active samples. Morozov recites, " the present invention was developed to provide the fabrication of chips made from sample deposits of non-volatile substances which include biomolecules (e.g., biomacromolecules such as proteins and DNA), organic substances, salts, inorganic colloids, etc., which are deposited into a particular shape or into an array." (See pg 12, Lines 3-8) The sample is being selectively and simultaneously deposited on the sample chips at predetermined positions. The device further comprises supporting means for supporting a plurality of sample chips on which samples contained in the solutions and electrostatically sprayed from electro-spraying means are deposited. The device further comprises masking.

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means disposed between electro-spraying means and supporting means and having holes whose number is equal to the number of the sample chips, a sample being selectively and simultaneously deposited on sample chips at predetermined corresponding locations. Morozov recites, "a mask having either a single non-round hole or an array of holes (of any shape) in a pattern, and which mask is interposed between an electrospray source and the substrate surface on which a sample is to be deposited." (See pg 15, Lines 13-19) The device further comprises shifting means for shifting supporting means and masking means relatively such that the samples are deposited on plurality of sample chips to manufacture simultaneously a plurality of microarrays. Morozov recites, "When a single sample of complex shape and uniform thickness is to be deposited (for example, rectangular protein strip), the capillary is preferably stationary and not positioned directly above a non-round hole in a mask while the mask and the substrate/support are being rotated..." (See pg 20, Lines 29-34) Morozov further recites, either the mask or substrate is shifted by an XY scanner after each deposition of a different solution so that single spots of multicomponent matrices are fabricated under each hole of the mask simultaneously." (See pg 34, Lines 24-27) Morozo further recites, "the substrate is attached to a movable stage and in Fig. 33, the mask is attached to a pair of plates, each capable of moving within slides." (See pg 34, Lines 36-38) The electrospraying means further comprises a guard ring and /or a shield for preventing diffusion of the electrostatically sprayed substances from capillary. Morozov recites, "a guard ring having a potential of the same sign as the charged microdroplets leaving the capillary tip is positioned approximately at the level of the

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capillary tip to surround the zone of electrospray discharge with a charge that repels the charged microdroplets and prevents any scatter during electrospray.” (See pg 20, Lines 37-30 and pg 21, Lines 1-5) With respect to Claim 4, Morozov recites, “Replacement of air with freon, carbon dioxide or other corona-suppressing gas can be used to help prevent corona discharge. Corona discharge effects can also be inhibited if the electrospray is assisted by gas-jet atomization...” (See pg 20, Lines 3-7) With respect to Claim 12, Morozov recites, “these plastic screens could be of conical or cylindrical body” (See pg 21, Lines 8-10) With respect to Claim 16, Morozov recites, “Spacers 6258 are preferably small spheres so that the mask 62 can roll in any direction on the surface of the substrate.” (See pg 43, Lines 28-30) With respect to Claim 17, Morozov further recites, “a supply of dry air (or other gas) from a tank 500 flows through a tube 502 and a flow meter 503 into the chamber 100.” (See pg 40, Lines 5-7)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. **Claims 3 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morozov.

Refer above for the teachings of Morozov.

Morozov fails to teach means for cleaning the capillary after a sample solution has been electrostatically sprayed and before a next sample solution is electrostatically sprayed and means for controlling the temperature of the plurality of sample solutions contained in capillaries held in the multi-capillary cassette.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Morozov such that there is means for cleaning the capillary after a sample solution has been electrostatically sprayed and before a next sample solution is electrostatically sprayed in order to avoid cross contamination between samples.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Morozov such that there is means for controlling the temperature of the plurality of sample solutions contained in capillaries held in the multi-capillary cassette in order to achieve optimal conditions for analysis.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jyoti Nagpaul whose telephone number is 571-272-1273. The examiner can normally be reached on Monday thru Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN


Jill Warden
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